REMARKS

Claim Status

Currently, claims 1-13 are pending in this application, with claims 1 and 6 as independent claims. In this Amendment, Applicants have added new claims 14 – 18, support for which can be found on pages 5-6 of the specification, and have amended claims 3 and 8 to correct minor typographical errors. No new matter has been added. Upon entry of this Amendment and Response, there will remain 18 total claims pending, with 3 independent claims (claims 1, 6, and 14) and 15 dependant claims. Applicants believe no fee is due, however if a fee is required please charge Deposit Account No. 20-0531.

Claim Objections

In the Office Action, claims 3 and 8 were objected to due to informalities. Applicants thank the Examiner for identifying these informalities, which have been addressed in the preceding claim amendments.

Also in the Office Action, claims 4, 5, 9, and 10 were objected to and said to be allowable if rewritten in independent form. Applicants thank the Examiner for indicating that these claims would be allowable.

Claim Rejections

In the Office Action, claims 1-3, 6-8, and 11-13 were rejected under 35 U.S.C. § 102 (e) as being anticipated by Mutoh, U.S. Patent No. 6,631,210 ("Mutoh").

Independent Claims 1 and 6

Independent claims 1 and 6 are rejected under 35 U.S.C. § 102 (e) as being anticipated by Mutoh. Applicants respectfully traverse this rejection. Mutoh is directed to a method for "discrimination between character areas and mesh areas as well as the discrimination between black areas and white areas." Mutoh, Abstract lines 21-24.

Mutoh describes finding a density difference sum as "an addition of the sum of absolute values of density level differences between pixels adjacent in the main scanning direction." Mutoh, column 30 lines 31-35. In contrast to Mutoh, Applicants' independent claim 1 recites, in part, "calculating a plurality of spatial gradients based on pixel values of adjacent pixels." In addition, Applicants' independent claim 6 recites, in part, "calculating a plurality of spatial gradients for the pixel line segment based on the first plurality of pixel values of adjacent pixels." Applicants respectfully disagree with the Examiner's assertion that the density differences calculated along a linear path as described in Mutoh are equivalent to the spatial gradients disclosed in Applicants' claims 1 and 6. For example, using the methods described in Mutoh, the detection of a finely spaced vertical lines would produce a series high gradient values, thus indicating multiple transitions from non-black to black, and suggesting the existence of multiple characters. However, by "calculating a plurality of spatial gradients based on pixel values of adjacent pixels," Applicant's system can determine if such lines are text or graphics. As such, Mutoh does not teach or suggest how the linear density differences being used to detect edges of text in a mesh or halftone area can be used to distinguish text from graphics as recited in Applicant's independent claims 1 or 6.

Furthermore, Mutoh later describes comparing various calculated statistics "with the threshold values that are set for the respective factors, and outputs the first color detection result COLOR in three ways." Mutoh, column 32 lines 4-6. With regard to the use of the detection results, Mutoh discloses a:

> "first color detection result COLOR in three ways in accordance with the combinations. In other wards [sic], "01" of the first color detection result COLOR represents "black character area (in which emphasis processing is required)", "10" thereof represents "black character area (in which no emphasis processing is required), and "00" thereof represents "area other than the black character area". That is, the first color detection result COLOR detects black portions."

Mutoh, column 32 lines 7-13.

In contrast, Applicants' claim 1 recites "identifying the pixel line segment as one of a text segment or a graphic segment by comparing the smoothness index to a threshold value." In addition, Applicants' independent claim 6 recites, in relevant part, "identifying the pixel line segment as one of a text segment or a graphic segment by comparing the smoothness index to a first threshold value and the calculated value of the second plurality of the pixel values to a second threshold value." In contrast Mutoh discloses distinguishing black character areas from non-black character areas such as half tones, as evidenced from Mutoh's description of extracting "character areas from dot areas (newspapers, etc.)." Mutoh, column 3 lines 40-41. Whereas Mutoh identifies text by distinguishing the edges of the text with respect to non-text areas in the image by determining if a pixel is black (e.g., text) or non-black (e.g., line image, halftone) (see, for example, FIG. 18), Applicants' claim 1 and 6 both recite distinguishing text from graphics.

As such, Applicants respectfully submit that Mutoh fails to teach each and every

element of Applicants' independent claims 1 and 6, and those claims that depend directly

or indirectly therefrom.

CONCLUSION

In view of the foregoing, Applicants respectfully request reconsideration, withdrawal of all grounds of rejection, and allowance of claims 1-18 in due course. The Examiner is invited to contact Applicants' undersigned representative by telephone at the number listed below to discuss any outstanding issues.
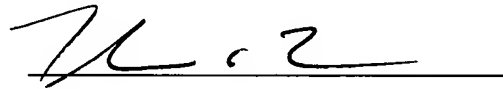
Respectfully submitted,

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TITLE: Methods for Auto-Separation of Texts and Graphics
APPLICANTS: Srinidhi et al.
SERIAL NO.: 10/084,626   Filed: February 25, 2002
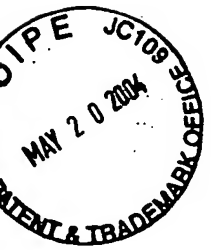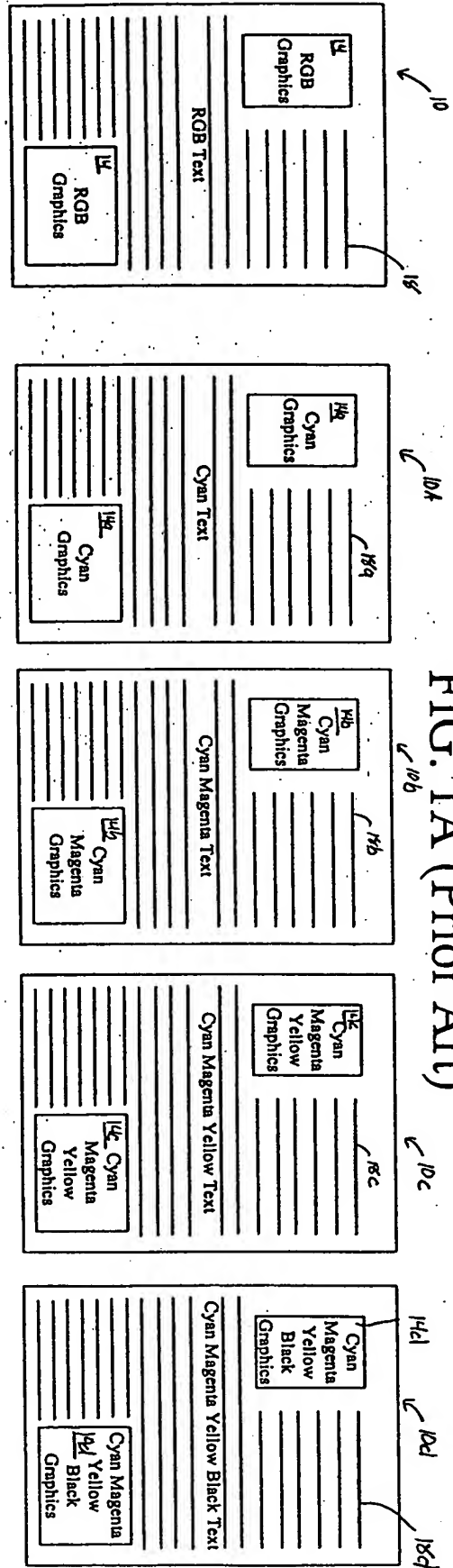ATTY. DOCKET NO.: PXL-042
EXPRESS MAIL NO.: EV399912233US
(Sheet 1 of 10)

FIG. 1A (Prior Art)

FIG. 1B